MOSCA MODEL TO EVALUATE THE "ELT ON LINE COURSE" TO DEVELOP ENGLISH DIDACTICS IN PRE-SERVICE ENGLISH TEACHERS AT UNIVERSIDAD DISTRITAL FROM BOGOTÁ, COLOMBIA

MOSCA MODEL TO EVALUATE THE "ELT ON LINE COURSE" TO DEVELOP ENGLISH DIDACTICS

AUTHOR: Flor Marina Hernández Saldaña[1]

CONTACT ADDRESS: E-mail: mhernandezsf@gmail.com

Date of receipt: 30-09-2013

Date of acceptance: 12-12-2013

ABSTRACT

The presenters try to offer the most important findings of the research Evaluation of the on line ELT (English language teaching) course to develop the didactic competence through "Task based approach" as a methodological strategy to solve some methodological difficulties of EFL student-teachers with the use of the software ELT. The participants will learn about the Mosca model used to evaluate virtual tools as well as the evaluation process and the data gathered by means of 7 main categories. The presenters will also discuss how this type of research contributes to meeting the standards of doing research that combines both technological development and pedagogical intervention in Colombian EFL teacher-education programs.

KEYWORDS: English language teaching; didactic competence; virtual tools

1. BACKGROUND

New Technologies of Information and Communication tools are useful in effecting change in the population, which in our view should contribute to environmental conservation, and improve the dissemination and popularization of scientific knowledge.

We believe that one way to achieve this is through the dissemination of content in which information and its presentation to seek a change in habits and behaviors of users that use it, and a willingness to collaborate and support the conservation of the environment so that it potentiates the interdisciplinary collaboration between researchers to tackle the environmental problem since it looks natural, social and cultural.

In addition, we seek to create the users of our proposal for greater interest of the people in the environment, using strategies that involve the

[1] Doctor in Pedagogical Sciences from ISPEJV-Havana, Cuba and an M.A in Applied Linguistics from Universidad Distrital. Director and researcher of the group "Didáctica del Inglés y Tecnologia". Author of several articles and books. She has taught in different universities in Colombia. She is currently teaching at the Master Program in Education at Universidad Libre.

conservation of the same, that we believe we can achieve through the public awareness of the need to be responsible and avoid waste of energy, food, etc.. For this work we believe are the fundamental means of communication, but without forgetting that knowledge does not necessarily lead to action.

Finally, the development of a virtual platform that supports the training of teachers and students in foreign languages, will generate changes in habits and behavior of users, creating new scenarios, consequently, there is the need to develop the fourth phase of the process of implementing an online course in English called ELT and a virtual platform called DIT ON Line, which have already been partially implemented, but requires the development of the final version from the processes of evaluation, improvement and validation of the platform by using it to teach English.

2. Evaluation Models: Platforms and Virtual Courses

2.1 History

The process of training teachers of English in the Colombian context has undergone major changes since made when the General Law of Education in 1994, which requires the teaching of a foreign language since the third grade of basic education to the need for a bilingual population to meet the challenges of the globalized world population of projects such as Bogotá and Cundinamarca Bilingual in ten years. It is from this need within the research of the Faculty of Science and Education of the Universidad Distrital Francisco Jose de Caldas "Teaching the Disciplines" groups began investigations in the field of teaching, which in If the research group of English Teaching and Technology (DIT) has deepened the educational resources for teaching English, on the understanding of the need to improve the teaching skills of future teachers of English in the curriculum project's Degree in Education Emphasis on basic English (LEBEI).

In this way starting in 2000 the group DIT has been investigating the various problems surrounding the teaching skills of prospective teachers of English. Hernandez et all (2005) describe the history and process of the research. This process has advanced in three stages. In the first phase was concluded that the future teachers of English needed to improve the communicative competence, linguistic and methodological.

In the second, considering that teachers in charge of the investigation were able to establish that the proposed research covers the fields of communication, language and methodology, it was agreed to focus research on the teaching because the degree had been implemented some actions to improving linguistic and communicative competence. Thus, a second stage is to design multimedia materials (educational software called ELT) designed to improve the teaching skills. Results showed that it was necessary to design a platform that allows interaction with peers and tutors and at the same time

bear videos (a software application does not allow such actions) and to create an academic community to optimize software and offer better quality users.

During the time of the earlier stages was not an opportunity to explore, assess, validate and/or computer designed to optimize the materials because they were not included from the beginning dedicated instruments to assess and validate the designed material which determines the impossibility of effective implementation and further actions to achieve an optimization of technology resources designed by the group DIT. The continuation of this project without the design and implementation of evaluative tools that reduce the scope of its implementation can have a widely. Therefore it is necessary to make a thorough assessment of each of the elements that constitute the technological platform and the current ELT then validate the proposal in local and national contexts of the field of teaching and learning of English and its teaching. Finally make the necessary corrections and redesigns in the applications so they can have an optimum role in its future implementation.

2.2 Concept

With the advent of the Internet is a significant lowering of the cost of software development, making it easier to create materials for use online. But still need some advanced knowledge of programming to create a course or training module, and therefore these courses are not accessible to everyone. Since the mid-90s begin to emerge learning platforms that enable the creation and management courses for the web without the need for deep knowledge of programming or graphic design.

Virtual platforms are concerned solely with the technology used for the creation and development of courses or modules on the Web. As such, they are "a tool that makes a teacher in the development of courses and workshops, in a simple and quick, taking advantage of the volume and importance of academic content and research are in a given area and time.

2.3 Description

The general characteristics of the virtual platform are: 1) The means to modify and present information in a dynamic process of forming subsequent amendments, and 2) have the ability to integrate different symbolic media (images, symbols, signs, and linguistic, mathematical, sounds).

Also can have within its structure point features that specify its purpose (DILLENBOUG, 2000):

Table 1: Characteristics Virtual Learning Environments

What is specific to virtual learning environments?
The information space has been designed.
Educational interactions occur in the environment, turning spaces into places. The information/social space is explicitly represented. The representation varies from text to 3D immersive worlds.
Students are not only active, but also actors. They co-construct the virtual space.
Virtual learning environments are not restricted to distance education. They also enrich classroom activities.
Virtual learning environments integrate heterogeneous technologies and multiple pedagogical approaches.
Most virtual environments overlap with physical environments.

It is composed by tools such as: 3. Approach the solution

. Communication tools such as forums, chats, e-mail.

. Tools of students as self-assessments, group work areas, profiles.

. Productivity tools such as calendar, bookmarks, help.

. Management tools such as authorization management.

. Tools of the course as a bulletin board, evaluations.

This proposal consists of a series of questionnaires through which the measurement is done by teachers, IT specialists and students. The proposed model for evaluating educational software under a quality system approach offers a methodology and study of pre-selection for the acquisition of educational software as well as field studies for validation of software or questionnaires to students in formats, depending on whether the software you want to evaluate commercially purchased as an end product (educational institutes, teachers, parents) or are under development (production of educational software).

The novelty of this tool is that it quantifies the metrics for assessing quality from three categories, Functionality, Usability and Reliability, with their respective metrics, determining whether the quality of educational software is basic, intermediate or advanced.

The structure of the model consists of four levels as follows:

- Level 0/Dimensions: Internal and contextual aspects of the product are the two dimensions are applied in the Matrix of Global Systemic Quality. (Callaos and Callaos, 1996)
- Level 1/Classes: where the application of the three categories Functionality, Usability and Reliability.
- Level 2/Characteristics: Each category has an associated set of characteristics, which define the key areas to achieve a satisfying, secure and control the quality in the product or process. It also added the secondary characteristics that affect each category.
- Level 3/Sub features: Some of the features are associated a set of characteristics grouped under each of the features and accompanied with the unique key that identifies them.
- Level 4/Metrics: For each feature proposes a set of metrics used to measure the quality system designed to evaluate the use of the virtual platform DIT On-line, using the most appropriate platforms and virtual courses.

However, given that the course is an ELT in the virtual platform DIT On-Line, will also be a model for this assessment system, but the following three related dimensions, their characteristics and specific evaluation criteria from Virtualization SANTOVEÑA (2005), point of greatest importance in virtual courses.

The three main dimensions are the overall quality of the environment, quality teaching and methodological and technical quality.

4. Methodology

At present, thanks to advances in information technology and communications, education, there are a considerable number of platforms that support virtual courses and training processes that are used by many students. Moreover, this proliferation of platforms and virtual courses was favored, the spread of computers as a tool to teach academic content, increasing the supply of academic programs, the rapid development of the Web and the urgent need for universities and colleges training to expand its educational offerings, adapting to the needs of society and make it accessible to more students. Within this context, there have been various types of platforms, among which are the commercial WebCT, Blackboard, First Class, eCollege, Angel, etc. There are those designed through research and development projects that are offered by research groups in open source, enabling users to participate in improving the same, which are Moodle, Claroline, handcuff Virtual Classroom, etc. In addition, there are platform specific, generated by schools, according to the educational model proposed by them.

But all of them allow for the creation and management courses for the Web. Usually platforms include tools to facilitate learning, communication and collaboration, course management tools, and tools for designing the user interface. The conditions that determine the adoption of a platform depends on the characteristics of the educational environment to be used. As a result there are different methods for developing Web courses, however, despite all the tools developed has not been reached to establish a standard to determine the courses can be created and distributed on the Web that can be used to create material courses and give students access to remote sites. Within this context, there is a need for evaluation models for virtual platforms and educational software for their components.

At present, we find assessment models such as software used in the Latin American Institute for Educational Communication in Mexico. Within this model it is reasonable to emphasize concern for the proper performance of the teaching-learning process in the implementation of educational software. Based on four key pedagogical features (Morales, Gonzalez, Carmona, Reyes 1998) comprehensive, integrated, continuous and permanent also noted the finding of features, functions and processes associated with software aimed at the presentation level interface but not deepens its functionality, the reliability of its content and / or improving the use and results if it feeds back.

As product-media educational content are also the organizational model for the production of virtual courses. The model describes the requirements that must be taken into account when creating them as they are quantifiable, measurable, adaptive, multidisciplinary and technical information. Also charged are designated four sections of the platform before, during and after their creation.

This model and many others suggest that its application to educational software and virtual platforms and their components are targeted by one side to the implementation of a teaching methodology aimed at teaching-learning process and on the other attraction in its navigability, but do one of the two that allows interaction and feedback from each of those platforms.

However, one of the most appropriate and set forth in the assessment of software is concerned, both for commercial acquisition in applications development, is the systematic pattern of Software Quality-flies. This model handles evaluation items of software, but is equally directed to the evaluation of educational software and pedagogy from the improved use and reliability of the results and contents. Given the above, it is necessary to have a model to assess the performance of our Platform DIT On Line Virtual Course and ELT.

4.1 Evaluation Model - Quality System Model

4.1.1 Plataforma Virtual DIT Online

This left the Systemic Model of Software Quality (MOSCA) by LISI-USB, expanding according to the requirements of quality educational software, taking into account not only the technical aspects of the product but the design and pedagogical teaching support materials.

Given that the model offers a methodology for screening and final study of software, whether it conforms to the acquisition of educational software commercially or under development. However it is clear that the virtual platform DIT On-Line and ELT course are devoted to their improvement and transformation so as to enhance the use of this platform and the teaching-learning in teaching.

When referring to quality of educational software, it requires a product that meets the expectations of both teachers and users at a lower cost free from defects and meet certain technical specifications and instructions. According to Gross (2000), software quality is determined not only by the technical aspects of the product but the design and teaching materials. The latter aspect is one of the most problematic because there are little programs that provide educational support. The evaluation of educational software has traditionally focused during the actual use by users to assess their efficiency and results that are obtained with it and during the process of design and development, in order to correct and improve the program.

To take the assessment model to evaluate MOSCA prepared educational software selects 3 stages 6 composing the full model: Functionality, Usability, Reliability, Efficiency, Maintainability and Portability. (Grimes, Mendoza, Perez and Rojas, 2001).

The selection is based on the stages as follows: i) the functionality is present in a category all assessment model software. ii) Usability is then chosen because educational software should encourage learning; it is essential that educational material is attractive and easy to use; you must create interactive activities that motivate and maintain attention, activities should be varied and that respond to different learning styles. iii) And finally Reliability was selected because it is important that the product works under the conditions and keep a specific level of performance.

And structured our new model flies SWE from MOSCA model can clearly describe each level it up:

Level 0: Dimensions

The dimension in which regulatory model is the product itself. The analysis to be applied is based on the matrix proposed by Rojas and Perez (1995) as follows:

- Internal aspects of the Product: These are determined by internal design activities and programming, as efficient a product is achieved when applying the practice of physical design and programming.
- Contextual aspects of the Product: These are determined by the identification of requirements, interface design and general design of the network (location of points) because it is related to the adequacy and user comfort.

According Callaos and Callaos (1996), the overall quality is not the sum of partial grades, but the compromise between the full set of qualities that lead to a global optimum. It is that quality software is not something that depends on one feature in particular; it reflects the commitment of all its parts. In turn, allows capture the current trends in two models of quality; these are quality of the product (software) and process quality, with a systemic approach.

The quality process is not suitable for evaluating educational software (such as virtual platforms) and to implement a model that we implement a quality assessment model to use the virtual platform DIT On-Line, therefore proceed in a way more thorough secondary generating quality process and a level of sub characteristics that define the level of product development (software) as basic, intermediate or advanced in the teaching-learning and teaching.

Level 1: Classes

However, the three categories that make up the evaluation model of software are:

Function (FUN): The ability of the software product to provide functions that meet specific needs or implicit when the software is used under certain conditions.

Usability (USA): This category refers to the ability of the software product to be attractive, understood, learned and used by the user under specific conditions.

Reliability (FIA): ability of software product to maintain a specified level of performance when used under specified conditions.

Level 2: Characteristics

Each category has an associated set of characteristics, which define the key areas to achieve a satisfying, secure and control the quality in the product or process. It also added the secondary characteristics that affect each category.

Functionality (FUN): The main features of the product with their respective number of metrics are: FUN1: Adjusting to the purposes (118), FUN2: Precision (4) and FUN3: Security (4). Additionally, the secondary

characteristics that impact the functionality focused on the process:

Table 2: Functionality Processes

FOCUSED IN PROCESS	
PROCESS CHARACTERÍSTICS	DESCRIPTION
CUS 1 Process of acquiring a system or software product	This process influences the functionality of the software product as it is necessary to obtain a product that meets customer needs, ensuring the acceptance of it.
CUS 3 Requirements Determination Process	This process also influences the functionality since it is responsible for ensuring that the needs and customer requirements are met through the development process.
SUP 5 Process Validation	In the process of validation should confirm that the requirements for a specific product of the system (software) are satisfied, i.e., this process ensures that the functionality of the software product is met.
SUP 6 Joint Review Process	This process directly affects the functionality of the product as it relates to maintaining a common understanding with the client about the progress of the process or project, in contrast to the approach to the objectives of the contract.

Usability (USA): The main features are: USA1: Ease of understanding (91), USA2: usability (11), USA3: Graphical Interface (14) and USA4 Operations (15). The same characteristics are shown secondary impacting usability: process-oriented:

Table 3: Usability Processes Reliability (REL): The main features are REL1: Mature (11), REL2: Recovery (4) and REL3: Fault Tolerance (4). Then the secondary characteristics that impact the reliability-oriented process:

FOCUSED IN PROCESS	
PROCESS ICS CHARACTERÍST	DESCRIPTION
1 SUPDocumentation Process	For a software product meets the characteristic of usability should be properly documented as facilitating the use and learning from it. In particular, concerns the creation of manuals and online help to reflect the most understandable way possible, all functions of the software product.
CUS 3 Requirements Determination Process	This process also affects usability, since it is responsible for ensuring the needs and requirements of the customer through the development process. This is the software product that does exactly what the customers want and why it is attractive and easy to use for the end user.
SUP 6 Joint Review Process	This process directly affects the usability of the product as it relates to maintaining a common understanding with the client about the progress of the process or project, in contrast to the approach to the objectives of the contract.

Table 4: Reliability Processes SUP 5 Process Validation

FOCUSED IN PROCESS		
PROCESS CHARACTERÍST	ICS	DESCRIPTION
CUS Operation Process	4	This process ensures the correctness of the operation of the software for the purpose for which it was intended and in the environment where it was installed, i.e., specified and monitored operating conditions of the product. Ensures completeness and consistency.
SUPVerification Process	4	This process affects the reliability of the product and you want to confirm that the product worked and / or service of a process or project properly reflects the requirements specified. The verification process ensures that the software product has all the components necessary to meet the requirements for which it was designed.

CUS 3 Requirements Determination Process

For a product that is reliable, must confirm that the requirements for the specific use of the product of the system (software) are satisfied.

This process also affects the reliability, since it is responsible for ensuring the needs and requirements that must be the product.

Level 3: Sub characteristics

For some of the characteristics associated a set of sub characteristics grouped for each of the features and accompanied with the unique key that identifies them.

Table 5: Sub characteristics focused in product

FOCUSSED IN PRODUCT		
CLASSES	CHARACTERISTICS	SUB CHARACTERISTICS
FUNCIONABILITY (FUN)	FUN1: Adjusted for the purposes (118)	FUN1.1: General (6) FUN1.2: Learning Objects (10) FUN1.3: Content of Learning (24) FUN1.4: Learning Activities (17) FUN1.5: Examples(5) FUN1.6: Motivation (17) FUN1.7: Feedback (11) FUN1.8: Aid (5) FUN1.9: Evaluation and Data Logging (11)
		FUN1.10: Teaching Methodology (12)
	FUN2: Accuracy (4)	
	FUN3: Security (4)	
USABILITY (USA)	USA 1: Ease of Understanding (91)	USA 1.1: General (13)
		USA 1.2: Interactivity (21)
		USA 1.3: Interface Design (34)
		USA 1.4: Didactics Guides (23)
	USA 2: Usability (11)	
	USA 3: Graphical Interface (14)	
	USA 4: Operations (15)	

RELIABILITY (REL)	REL 1: Mature (11) REL 2: Recovery (4)
	REL 3: the Fault Tolerance (4)
Total Metrics: 276	

4.1.1 Virtual Course ELT

Assess the best course of English Learning and Teaching (ELT) is addressed through three main dimensions: the general quality of the environment, quality teaching and methodological and technical quality.

- Environment Quality: with 7 main features
- Didactic and Methodological Quality: 4 with their respective characteristics and criteria.
- Technical Quality: 7 characteristics define other technical criteria.

Each of these three dimensions is composed of a set of criteria that are defined and analyzed using a set of features. In some cases, these criteria define themselves by other criteria that are described at length. In the following lines will present a brief description of the main dimensions and criteria, but will be left for another job specification for each characteristic, as the length and the target audience requires it. (SANTOVEÑA, 2005)

Figure 1: Virtual Course ELT - Evaluation Model 4.2 Evaluation Model and Metrics

4.1.1 Virtual Platform DIT Online

Level 4: Metrics

For each feature proposes a set of metrics used to measure the quality system, which will re-evaluate the most appropriate platforms and virtual courses. Given the number of metrics associated with each of the characteristics that make up MOSCA, they are not presented in their entirety by this proposal. Below are two types of metrics that can be used to secure the conclusion of each of the sub-features of the previous level. These are declared as it progresses in formulating the model for the Platform DIT Online. Also are defined as it progresses in the treatment of three main categories that can be taken as the points assessed in the surveys that are applied to gathering information and formulating requirements.

Table 6: Metrics Used in Evaluation and Improving Process 5. In Conclusion

Metric	Quantity of components which access to databases.	Metric	Generation of documentation consistent with standards and policies set
Ranges for Metric	>= 8 Æ 5 5-7 Æ 4 3-4 Æ 3 1-2 Æ 2 0 Æ1	Ranges for Metric	YES ___ NO N/A N/K

Evaluation of software and on line platforms is very important in order to offer good products of good quality to users, in this case English language teachers who depend on technological experts when designing English didactics activities for their classes mediated by technology. The previous was a reflection of the quality of software products and the quality of the development process of platforms.

Quality System Model (MOSCA) measures the quality system for those who develop and deploy software based on the quality of their product quality and process development. Within this context we note that the model allowed the specification of the processes that had to be improved in the Virtual Platform and DIT Online Virtual ELT Course and features that were preserved were not satisfied the product but subsequently allowed the generation of some quality requirements and purified the platform to support teaching and learning of English.

REFERENCES

Callaos, N. and Callaos, B. (1993) "Designing with Systemic Total Quality", en International Conference on Information Systems, N. Callaos and B. Sánchez (eds.), *International Institute of Informatics and Systemics*, Orlando, pp. 548-560.

Callaos, N. and B. Callaos, "Designing with Systemic Total Quality", *in International Conference on Information Systems*, Orlando, Florida, July, 1996, pp. 548-560.

Santoveña Casal. Unidad de Virtualización Académica. Universidad Nacional de Educación a Distancia (UNED) Sonia Mª Santoveña Casal. *Revista Etic@net núm. 4. Enero (2005). C*riterios para la de Evaluación DE Cursos Virtuales. http://www.ocv.org.mx/contenido/articulos/articulo01_sept2005.pdf

Gros, B. (2000) "Del software educativo a educar con software". Artículo publicado en el número monográfico de la revista digital Quaderns Digital. Disponible: http://www.quadernsdigitals.net/articuloquaderns.asp?IdArticle=3743

Hernández et all (2005) Un espacio virtual para la metodología de la enseñanza del inglés. Fondo de publicaciones universidad Distrital. Botoa Colombia,

Mendoza, L., Pérez, M., Rojas, T. (2001) "Modelo sistémico para estimar la calidad de los sistemas de software". (MOSCA).ASOVAC, Acta Científica Venezolana, (53:3) p 435. LISI, Universidad Simón Bolívar. Disponible: http://www.lisi.usb.ve/publicaciones

Pérez, M., Rojas T., Ortega, M., y Álvarez, C. (1999) "Toward Systemic Quality: Case study", en 4Th Squad eeting, Squad, Porlamar, Venezuela, July. Disponible: http://www.lisi.usb.ve/publicaciones

Rojas, T. and M. Pérez, "Improvement in the Development of Information Systems by increasing its Process Effectiveness", in *InterSymp '95 - 5th International Symposium on Systems Research, Informatics and Cybernetics*, Baden-Baden, Germany, July, 1995, pp. 36-42, http://www.lisi.usb.ve/publicaciones.

Dillenbourg, Pierre. (2000) "Virtual Learning Environments" In EUN Conference 2000 «Learning In the New Millennium: Building New Education Strategies for Schools». University of Geneva. pp. 2-6. http://tecfa.unige.ch/tecfa/publicat/dil-papers-2/Dil.7.5.18.pdf.